Math 112
ReQuiz 09B

2022–04–03 (N)

Your name: _____

Exercise

(a) (2 pt) Show that $\lim_{x \to 0} \dfrac{1 - \cos(x^2)}{x^4} = \dfrac{1}{2}$.

Hint: While not required, you may use the Taylor series $\cos\theta = 1 - \frac{1}{2}\theta^2 + \frac{1}{24}\theta^4 - \dots$

(b) (2 pt) Show that $\lim_{x \to 2} \dfrac{x^3 - 3x^2 + 4}{x^3 - 5x^2 + 8x - 4} = 3$.

Hint: Note that $x = -1$ is a zero of the numerator, and $x = 1$ is a zero of the denominator.